



• Specifications

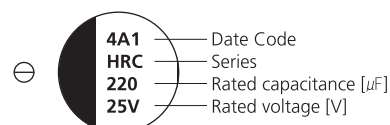
Items	Characteristics																				
Category temperature range	-55 to +125°C																				
Rated voltage range	25 to 80Vdc																				
Capacitance range	22 to 680μF																				
Capacitance tolerance	±20% [M] (at 20°C, 120Hz)																				
Leakage current	I=0.01CV or 3μA whichever is greater (at 20°C, after 2 minutes)																				
Tangent of loss angle(tanδ)	<table><tr><td>Rated voltage(V)</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td></tr><tr><td>Tanδ</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td><td>0.08</td></tr></table>							Rated voltage(V)	16	25	35	50	63	80	Tanδ	0.16	0.14	0.12	0.10	0.08	0.08
	Rated voltage(V)	16	25	35	50	63	80														
Tanδ	0.16	0.14	0.12	0.10	0.08	0.08															
(at 20°C, 120Hz)																					
ESR	Less than or equal to the value of Standard Ratings (at 20°C, 100kHz)																				
Low temperature characteristics (Impedance ratio at 100kHz)	$Z(-25^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.5$ $Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 2.0$																				
Endurance	125°C, 4,000 hrs, apply the rated ripple current without exceeding the rated voltage																				
	Capacitance change			Within±30% of the initial value																	
	Tangent of loss angle (tanδ)			≤200% of the initial specified value																	
	ESR(mΩ)			≤200% of the initial specified value																	
	Leakage current			≤The initial specified value																	
Shelf life	After storage for 1,000 hrs at 105°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the specified values for the endurance characteristics listed above.(with voltage treatment)																				
Damp Heat (Steady State)	85°C, 85% RH, 2,000 hrs, rated voltage applied																				
	Capacitance change			Within±30% of the initial value																	
	Tangent of loss angle (tanδ)			≤200% of the initial specified value																	
	ESR(mΩ)			≤200% of the initial specified value																	
	Leakage current			≤The initial specified value																	

• Part numbering system

Example: HRC series, 25V / 220μF

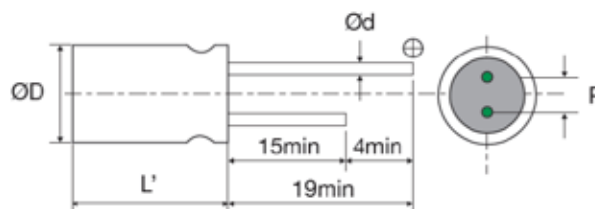
25	HRC	220	M	D	10
Voltage	Series	Capacitance	Tolerance	Diameter	Length

• Marking and Dimensions



• Frequency coefficient for ripple current

Frequency	120Hz	1kHz	10kHz	100kHz
Coefficient	0.15	0.40	0.75	1.00



Size	ØD±0.5	L	L'	P±0.5	Ød
8.0×9.5	8.0	9.5	L±1.0	3.5	0.60
10.0×10.5	10.0	10.5		5.0	0.60
10.0×11.5	10.0	11.5		5.0	0.60
10.0×16.0	10.0	16.0		5.0	0.60

• Standard Ratings

Rated Voltage [Vdc]	Rated Capacitance [μF]	Size ØD x L [mm]	ESR (20°C, 100kHz) [mΩ] [max.]	Rated Ripple Current (125°C, 100kHz) [mA _{rms}]	Part Number
25	150	8.0 x 9.5	27	1600	25HRC150MD10
	220	8.0 x 9.5	27	1600	25HRC220MD10
	330	10.0 x 10.5	20	2000	25HRC330ME10
	680	10.0 x 10.5	20	3600	25HRC680ME10
35	100	8.0 x 9.5	27	1600	35HRC100MD10
	150	8.0 x 9.5	27	1600	35HRC150MD10
	220	8.0 x 9.5	20	2000	35HRC220MD10
	220	10.0 x 10.5	20	2000	35HRC220ME10
	270	10.0 x 10.5	20	2000	35HRC270ME10
	680	10.0 x 16.0	11	4200	35HRC680ME16
50	47	8.0 x 9.5	30	1250	50HRC47MD10
	68	8.0 x 9.5	30	1250	50HRC68MD10
	100	10.0 x 10.5	28	1600	50HRC100ME10
	120	10.0 x 10.5	28	1600	50HRC120ME10
	220	10.0 x 16.0	13	4000	50HRC220ME16
63	33	8.0 x 9.5	40	1100	63HRC33MD10
	47	8.0 x 9.5	40	1100	63HRC47MD10
	56	10.0 x 10.5	30	1400	63HRC56ME10
	68	10.0 x 10.5	30	1400	63HRC68ME10
	82	10.0 x 10.5	30	1400	63HRC82ME10
	100	10.0 x 11.5	22	3700	63HRC100ME11
	150	10.0 x 16.0	15	4500	63HRC150ME16
	180	10.0 x 16.0	15	4500	63HRC180ME16
80	22	8.0 x 9.5	45	1050	80HRC22MD10
	33	10.0 x 10.5	36	1360	80HRC33ME10
	47	10.0 x 10.5	36	1360	80HRC47ME10
	68	10.0 x 11.5	32	3000	80HRC68ME11
	100	10.0 x 16.0	15	4000	80HRC100ME16